

Message

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**From:** Offenberg, John [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0CB339DB65AE4A229317977DE01D0336-OFFENBERG, JOHN]  
**Sent:** 1/11/2018 8:34:21 PM  
**To:** Riedel, Theran [Riedel.Theran@epa.gov]  
**Subject:** FW: 03 January call w/ NH?  
**Attachments:** 180110 NH x95 & y81 Series.xlsx

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**From:** Washington, John  
**Sent:** Thursday, January 11, 2018 3:33 PM  
**To:** Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Buckley, Timothy <Buckley.Timothy@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Offenberg, John <Offenberg.John@epa.gov>; Ryan, Jeff <Ryan.Jeff@epa.gov>  
**Subject:** RE: 03 January call w/ NH?

Hello,

A couple observations on the chars for whatever it might be worth for the planned efforts.

- 1) The three chars, MA, MX, QX, all looked and were textured differently from each other. One was very greasy and soft, one glassy and moderately hard, and the third glassy and as hard as anything I ever ground.
- 2) Based on my intermediate stage look at the chars, MA looks chemically much different than MS and QX:
  - a. Remember Ed Peduto mentioned that MA had been cleaned out and should be lower in legacies? Well it seems to be. For PFOA it was two orders of magnitude lower than the other stacks (see spreadsheet).
  - b. But two separate homologous series are obvious in MA, but much lower concentration in the other two stacks (spreadsheet). You can see both series on the CF2-Kendrick diagram, one series with the fragments plotting on the same horizontal line (spreadsheet), the second series only with the precursor showing.
  - c. The larger series I think is HPFCAs. The transition is the same I identified in the past with a Wellington custom standard and the mass error is low ppm.
  - d. The second series I did not have a fragment for, but, seeing its mass error was small for 1H-PFSAs, I ran the sample on my LC/MS/MS with i) no collision energy, ii) 50 eV coll e looking for 80 fragment, and iii) 50 eV coll e looking for the 99 fragment. All three generated identically timed and shaped peaks, supporting H-PFSAs.
- 3) Noteworthy details on these series in char MA include:
  - a. It goes up to C21 for the conceptual HPFCAs and C16 for the HPCsAs;
  - b. The peak areas for both series are larger than the peak area for PFOA (spreadsheet).
  - c. Also remember that Ed said that MA is a cleaned stack (which is consistent with PFOA being lower than in MS and QX). So why are these possible long chains present at such large peak areas? Residuals after cleaning? Still produced?
- 4) Note that some of the conceptual HPFCAs also are detected in the soils, especially Soil S1.

Have a great weekend everyone,  
John

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**From:** Lindstrom, Andrew  
**Sent:** Thursday, January 11, 2018 10:22 AM  
**To:** Buckley, Timothy <Buckley.Timothy@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Offenberg, John <Offenberg.John@epa.gov>; Ryan, Jeff <Ryan.Jeff@epa.gov>; Washington, John <Washington.John@epa.gov>  
**Subject:** FW: 03 January call w/ NH?

Tim,

We should probably meet to talk about this sometime soon.

Thank you,

Andy

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**From:** PedutoJr, Edward [<mailto:Edward.PedutoJr@des.nh.gov>]

**Sent:** Thursday, January 11, 2018 9:30 AM

**To:** Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>

**Cc:** Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>; Kernen, Brandon <[Brandon.Kernen@des.nh.gov](mailto:Brandon.Kernen@des.nh.gov)>; Beahm, Catherine <[Catherine.Beahm@des.nh.gov](mailto:Catherine.Beahm@des.nh.gov)>; O'Brien, Mike <[Michael.O'Brien@des.nh.gov](mailto:Michael.O'Brien@des.nh.gov)>; Wimsatt, Mike <[Michael.Wimsatt@des.nh.gov](mailto:Michael.Wimsatt@des.nh.gov)>; Tim Russell ([trussell@barr.com](mailto:trussell@barr.com)) <[trussell@barr.com](mailto:trussell@barr.com)>; Milbury, Gary <[Gary.MilburyJr@des.nh.gov](mailto:Gary.MilburyJr@des.nh.gov)>; [michael.fitzgerald@des.nh.gov](mailto:michael.fitzgerald@des.nh.gov)

**Subject:** RE: 03 January call w/ NH?

Andy:

Here is an update based on information obtained from Barr Engineering who will do the stack testing at Saint-Gobain.

1. Scheduling – Barr offered comments in passing that Saint-Gobain did not see getting the pilot unit in place, plumbed in and operational before March 1.
2. Saint-Gobain's current thinking is to do the pilot trial on the QX tower which is a five-pass film cast unit where dispersion is coated on both sides of a polyimide belt, coated and run through five sequential towers (coat / cure; coat / cure, etc.) and out the stack. This process makes films for food grade applications and non-food grade films that are laminated to fabric coated materials. It is my understanding that the Daikin dispersions are used on this line.
3. Testing of the QX tower will consist of simultaneous inlet / outlet gas stream sampling.
4. Test the uncontrolled emissions on the MA tower which has the highest annual usage. They primarily use this tower to base coat fabric and is the tower that has been tested in the past programs. It is also the tower that was tested, ductwork replaced, tested on gas only after replacement and tested with base coat formulation. ORD has dispersions and char from this tower.
5. PFAS test runs will be two hours unless labs state that longer timeframes are required to lower detection limits.
6. Test the uncontrolled emissions from the MS tower. Lower usage than MA. ORD has char from this tower.
7. All three towers will be tested for total fluorides and ammonia for NH air toxics purposes and to see if breakdown products produce significant F- emissions. Barr will analyze these samples and ORD will not be involved.
8. Proposed sampling train is nozzle, heated probe, heated glass fiber filter, XAD-2 / Condenser Module, three Greenberg Smith impingers one containing 100 ml DI water, the next 100 ml, 0.1N NaOH, and the last 0.01N Na Borate, followed by a silica gel impinge for water knockout. We are discussing whether to put the filter and XAD after the borate impinge.
9. Proposing a meeting at the facility within the next two weeks to identify process conditions under which the pilot unit will be evaluated including dispersions to be run and process residuals (other than the gas stream) to be collected.
10. Current thinking (NHDES and Barr) is that Barr will provide XAD glassware to the labs (ORD and their commercial lab) for cleaning, packing resin, spiking, etc.
11. Since the ductwork is anticipated to be less than 24 inches in diameter, the current thinking is that every other test run on a tower will be sent to ORD and the remaining to the commercial lab for Saint-Gobain's used. A total of six test runs will be conducted for each tower.
12. I am proposing that each lab provide the QC'd reagents for samples that they would analyze and the field team would collect reagent blanks in the field and assemble and recover a field-biased blank train to account for any handling bias during one of the test runs.

13. The following is a ball-park sample inventory for the test program for the samples that ORD will receive and totals approximately 102:

Three test runs, QX inlet / outlet; three test runs each for MA and MS towers, for a total of 12 trains, plus reagent blanks and filed biased blank train. Each train has five fractions plus a methanol rinse fraction for a total of six (ORD may specify additional or different train rinse scenarios). This equals 84 samples (sample fractions) to be analyzed separately

Scrubber make-up water sample from plant water source for a total of one.

Scrubber sump water sample for each of the three control device test runs for a total of three.

Any control device solids that can be recovered from the device after testing is complete (e.g. sump solids, particulate filter material) – probably no more than two samples.

Char sample from each tower for a total of three.

Formulation samples from the dip pan for each test run for a total of nine samples.

Raw dispersions in the event that they use a dispersion that we have not sent to ORD.

14. Pertinent process data on tower operations, pilot unit, coating rate, coating thickness, etc. will be identified prior to test and recorded. This information will most likely be confidential.

This is a probable summary of what we know today and may have additions or deletions. Let me know of your thoughts and concerns.

Edward Peduto  
Senior Enforcement Specialist  
Air Resources Division – Compliance Bureau  
New Hampshire Department of Environmental Services  
29 Hazen Drive, PO Box 95  
Concord, NH 03301  
(603) 271-1374

[Edward.PedutoJr@des.nh.gov](mailto:Edward.PedutoJr@des.nh.gov)



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[des.nh.gov](http://des.nh.gov)

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**From:** Lindstrom, Andrew [<mailto:Lindstrom.Andrew@epa.gov>]  
**Sent:** Wednesday, January 10, 2018 8:41 AM  
**To:** PedutoJr, Edward  
**Cc:** Offenberg, John; Kernen, Brandon; Beahm, Catherine; O'Brien, Mike  
**Subject:** RE: 03 January call w/ NH?

Ed,

This is great – exactly what we're looking for.

Are we having a call today?

Thank you very much,

Andy

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**From:** Peduto Jr, Edward [<mailto:Edward.PedutoJr@des.nh.gov>]

**Sent:** Wednesday, January 10, 2018 8:30 AM

**To:** Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>

**Cc:** Offenber, John <[Offenber.John@epa.gov](mailto:Offenber.John@epa.gov)>; Kernen, Brandon <[Brandon.Kernen@des.nh.gov](mailto:Brandon.Kernen@des.nh.gov)>; Beahm, Catherine <[Catherine.Beahm@des.nh.gov](mailto:Catherine.Beahm@des.nh.gov)>; O'Brien, Mike <[Michael.O'Brien@des.nh.gov](mailto:Michael.O'Brien@des.nh.gov)>

**Subject:** RE: 03 January call w/ NH?

Andy:

Sorry that for not getting back to you sooner. We received verbal concurrence from Saint-Gobain to go ahead with the testing and will be talking to Barr Engineering about the logistics associated with the test. I will fill you in on schedule after the call. Just "eye balling" what needs to be done, I do not believe testing will occur before the middle of February. That being said, mandates can accelerate this.

On your end, some of the logistical items that you need to think about are as follows:

1. The PFAS sampling train in the past has consisted of heated probe, three Greenburg-Smith impingers with the first having 100 ml DI water, the second, 100 ml 0.1N NaOH, the third, 100 ml Na-borate, glass fiber filter, and silica gel (for moisture removal only). This configuration is essentially, a modified method 5 train put together backwards. Normal MM5 train has filter preceding resins and impingers. New train would incorporate at least one XAD module. ORD's suggestion is to put two in series to assess breakthrough. All train components are recovered and analyzed as separate fractions and all components are rinsed with MeOH which generates an additional fraction.
2. At this point, I am not sure that we can get Barr Engineering to agree to tandem XAD traps to assess break through since the normal MM5 procedure is to spike the resin with surrogates to assess recovery. Break-through is controlled by limiting sampling time to less than breakthrough volume. Two traps changes the configuration or their sampling equipment and makes the train fairly unwieldy to handle and two may not fit.
3. Sampling train media preparation – for sampling trains involving resins, the norm is to have the lab doing the analyses, clean, prep and QC the resin batch (in this case XAD-2), pack the resin traps, spike the trap with surrogates to assess recovery and ship to the field for the sampling team to use. The glass traps are normally provided by the sampling company to the lab and the lab cleans the glass according to the QC protocol. Sampling companies provide the glass so that the traps are compatible with their sampling equipment. Ray Merrill of EPA / OAQPS / Emissions Measurements Branch is probably your best in-house resource for guidance in this area.
4. On past tests for PFAS, the lab provided the other reagents that were QC'd as is the case with the XAD. This includes DI water, 0.1N sodium hydroxide, MEOH, 0.01N sodium borate, pre-cleaned glass fiber filters and sample recovery bottles.
5. NHDES requests pre-QCd Summa Canisters for collecting volatile compounds with calibrated orifices. NHDES will conduct the sampling to coincide with the time period for each PFAS test run. One question is how many samples do we take (which will be based on how many canisters are available). The current thinking is to do inlet / outlet testing on the control device in triplicate and each of the other two towers at the outlet only. Since sampling ducts are less than 2 feet, the thinking is to do six test runs (three for ORD and three for Saint-Gobain). If we did canisters for all runs, the number would be 24 not counting any blanks.

Edward Peduto  
Senior Enforcement Specialist

Air Resources Division – Compliance Bureau  
New Hampshire Department of Environmental Services  
29 Hazen Drive, PO Box 95  
Concord, NH 03301  
(603) 271-1374

[Edward.PedutoJr@des.nh.gov](mailto:Edward.PedutoJr@des.nh.gov)



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**From:** Lindstrom, Andrew [<mailto:Lindstrom.Andrew@epa.gov>]  
**Sent:** Tuesday, January 9, 2018 11:57 AM  
**To:** PedutoJr, Edward  
**Cc:** Offenberg, John; Kernen, Brandon  
**Subject:** FW: 03 January call w/ NH?

Ed,

I've been off on vacation for a while and I'm just getting back so I'd like to catch up regarding the proposed stack sampling we were talking about earlier.

Has this sampling effort been scheduled or is it still just tentative?

We're trying to make sure we are ready for any specific date we may need to meet.

Thank you very much,

Andy

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**From:** Offenberg, John  
**Sent:** Tuesday, January 9, 2018 10:23 AM  
**To:** Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>  
**Subject:** 03 January call w/ NH?

Andy,

Did you participate in the 03 January call with R1 & NH? If so, can you pass along the status of our (EMMD) participation in NH stack sampling &/or analysis of those samples and the resulting urgency of completion of a QAPP(S)?

John

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John H. Offenberg, Ph.D.  
National Exposure Research Laboratory  
U.S. Environmental Protection Agency  
109 T.W. Alexander Drive  
Research Triangle Park, NC 27711

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